

# Precision Filtration of General Gases Inside Cleanrooms

## CLEAN LINE FILTERS

### ■ PTFE (tetrafluoroethylene) membrane with highly reliable filtering performance

The filtration membrane is a dual-layer configuration consisting of a PTFE membrane and a PTFE non-woven fabric (patent pending), assuring stable performance.  
 100% filtering efficiency of 0.01  $\mu\text{m}$  microscopic particles!! (Measured using a condensation nucleus particle counter)

### ■ Compact with long service life

Uses a PTFE membrane surrounded by a PTFE non-woven fabric pre-filter, for a dual-layer configuration that achieves a superior life-span compared to single-membrane films!!

### ■ Allows quick start-up in production lines

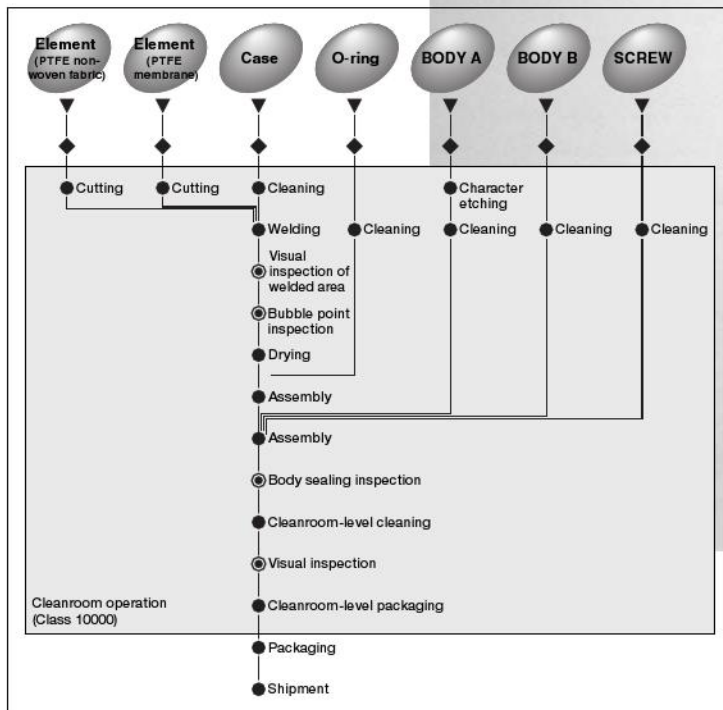
The parts used in the product ensure thorough cleaning inside the cleanroom.  
 The very small amount of particles adhering to the product facilitates quick start-up in production lines!!

### ■ Employs strongly corrosion-resistant parts and materials, allowing use with general gases

A chemically stable fluoro resin is used for the membrane, support parts, and O-ring, while an electrolytic polished SUS316 is used for the housing body, for superior corrosion and thermal resistance.

### ■ Contamination-controlled manufacturing process

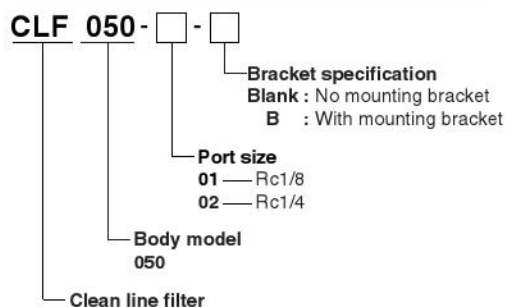
For the cleanroom application, the Clean line filter offers integrity tests (bubble point tests), airtight tests, cleanroom-level cleaning, and cleanroom-level packaging. It offers assured quality.



### Applications

For precision filtration on all kinds of general gases and vacuum lines used in semiconductor industry and liquid crystal manufacturing equipment.  
 For filtration of microscopic particles generated through the operation of pressure reducing valves, other valves, and pressure gauges, in the filter installations inside gas piping.

## Order Codes



## Additional parts (to be ordered separately)

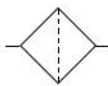
**Element for replacement (with O-ring)**



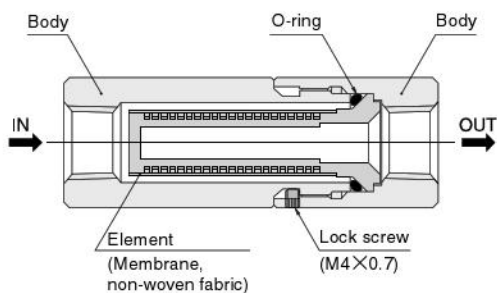
**Mounting bracket**



## Symbol

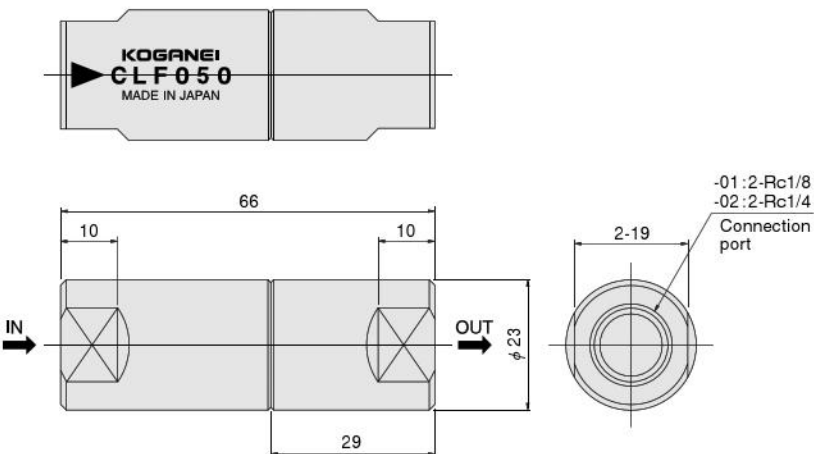


## Inner Construction and Major Parts



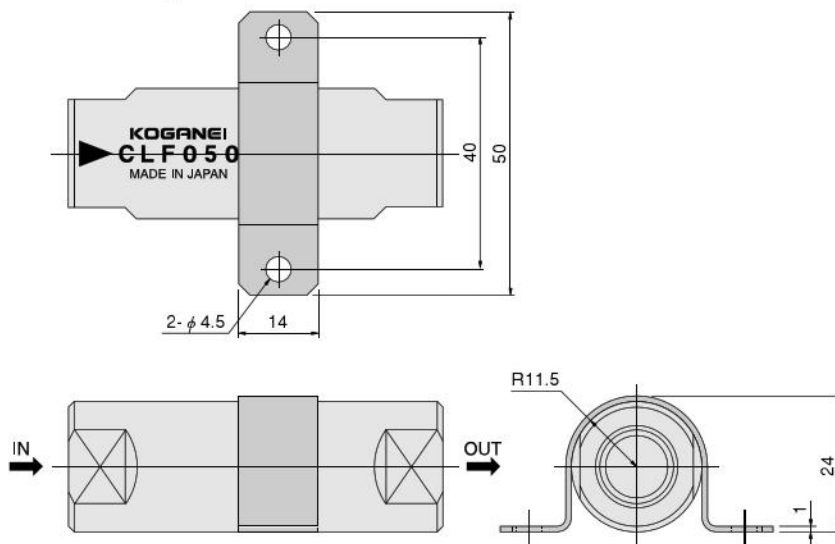
## Dimensions (mm)

**CLF050-□**



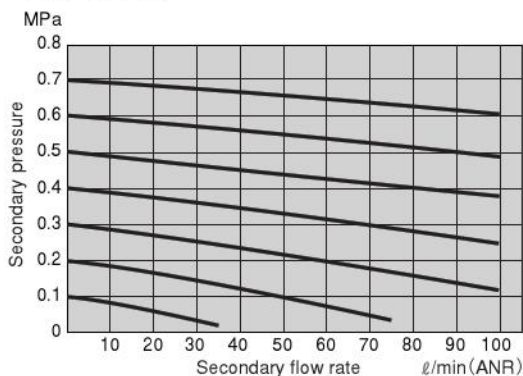
## Options

**-B : Mounting bracket**



## Flow Rate Characteristics

**CLF050-□**



1MPa = 145psi.  
1 l/min = 0.0353ft<sup>3</sup>/min.

Item	Model	CLF050-01	CLF050-02
Media		Air, N <sub>2</sub> , Ar, He, O <sub>2</sub> , CO <sub>2</sub>	
Port size	Rc	1/8	1/4
Maximum operating temperature °C [°F]		80 [176] (MAX.)	
Filtration efficiency	%	100% (0.01 μm)	
Filtration rating	μm	0.01	
Filtration area	cm <sup>2</sup> [in <sup>2</sup> ]	10 [1.55] or more	
Maximum operating pressure	MPa [psi.]	0.97 [141]	
Proof pressure	MPa [psi.]	1.47 [213]	
Element differential pressure resistance	MPa [psi.]	0.5 [73]	
Element differential reverse pressure resistance	MPa [psi.]	0.07 [10]	
Element construction		Dual-layer configuration of PTFE membrane and PTFE non-woven fabric	
Mass	g [oz.]	135 [4.76]	
Product method		Manufactured inside Class 10000 cleanroom	
Major parts and materials	Housing (body)	SUS316 (electro-polishing of outer and inner surface)	
	Element	Housing: PFA, element: PTFE	
	Seal (O-ring)	FPM	
	Mounting bracket	SUS304	

## Handling Instructions and Precautions



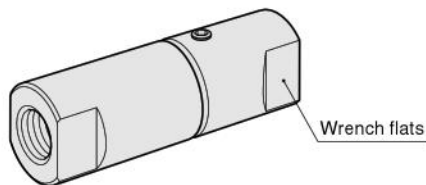
### Mounting and piping

#### Opening/closing the packaging

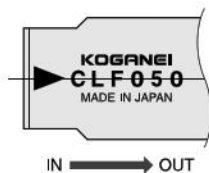
The filter body and replacement element are packed inside the cleanroom into a double-layer clean packaging. It is recommended that opening or closing the packaging be conducted inside a cleanroom or in a clean atmosphere.

#### Mounting

For plumbing, apply a wrench to the wrench flats of the body where piping threads are located while restraining body rotation.



Plumb the piping so that air flows in the direction of the arrows shown on the body (See below).



Use the optional mounting bracket for mounting in place.

#### Flushing

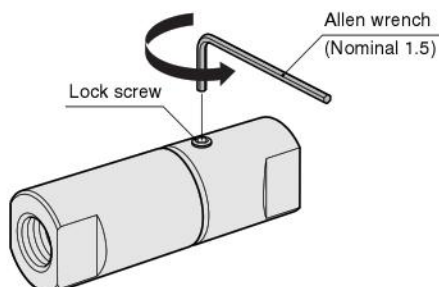
While this product cleaned in cleanroom-level cleaning by pure air at time of packaging, the effects of vibration, etc., during transport may lead to the generation of microscopic particles. Flush out (blow clean air through) the piping interior before initial use and before replacement of an element.

#### Element replacement

Before replacing any elements, remove the body from the fitting of piping. Because elements come with O-rings, replace an element with each O-ring.

When replacing an element, do not touch the element or the interior of the body with bare hands. Use dust-free gloves to replace the element.

While the body uses thread for tightening the each body part, it uses a lock screw to secure it in place. Before loosening the body thread, therefore, always loosen the lock screw, re-assemble the body, and then tighten the lock screw.



Body thread tightening torque: 980N • cm [86.7in. • lbf]

Lock screw tightening torque: 196N • cm [17.3in. • lbf]

#### Media

General gases are the media targeted for this product. (general gases listed in the specifications).

Be aware that it cannot be used with other gases.

#### ● Usable media

The product can be particularly used for general gases used as carrier gases.

Nitrogen (N<sub>2</sub>), argon (Ar), helium (He), oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>)

#### ● Non-usable media

This product cannot be used with special gases used on process lines, listed below.

#### CVD and epitaxial gases

Monosilane (SiH<sub>4</sub>), dichlorosilane (SiH<sub>2</sub>Cl<sub>2</sub>), phosphine (PH<sub>3</sub>), diborane (B<sub>2</sub>H<sub>6</sub>), ammonia (NH<sub>3</sub>), tungsten fluoride (WF<sub>6</sub>), hydrogen chloride (HCl)

#### Ionized gases

Arsine (AsH<sub>3</sub>), boron trifluoride (BF<sub>3</sub>)

#### Etching gases

Boron trichloride (BCl<sub>3</sub>), methane tetrafluoride (CF<sub>4</sub>), nitrogen trifluoride (NF<sub>3</sub>)



### General precautions

1. Use media that fall within the specification ranges. Do not use with any other media.
2. Avoid using in locations where the ambient temperature exceeds the maximum operating temperature range.
3. Avoid using when the specified maximum operating pressure is exceeded.
4. Avoid applying excessive external force on this product.
5. Do not expose this product to ultraviolet rays, wind or rain.